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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Stephen John Fedigan

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EXAMINER

FAULK, DEVONA E

ART UNIT

PAPER NUMBER

2614

NOTIFICATION DATE

DELIVERY MODE

07/22/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/628,159	Applicant(s) FEDIGAN, STEPHEN JOHN	
	Examiner DEVONA E. FAULK	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7, 8 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 20 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 7 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/28/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/23/09 have been fully considered but they are not persuasive. The applicant asserts that the prior art fails to read on the amended claim language of claim 1. Specifically the applicant asserts that “

The only teaching of remotely resembling the "radially offset" recited in claim 1 is "A front annular cylindrical iron pole piece 32 is positioned about the voice coil 30 and spaced radially therefrom." The Applicants respectfully submit that one skilled in the art viewing Pulfrey would understand front annular cylindrical iron pole piece 32 is coaxial with voice coil 30 and cone 21. The OFFICE ACTION cites voice coil 30 as making obvious the second unit recited in claim 1. Voice coil 30 clearly cannot have an axis radially spaced offset from its own axis as required by the language of claim 1. Thus Pulfrey fails to make obvious the "position on said cone radially offset from said axis" limitation. Accordingly, claim 1 is allowable over the combination of Pulfrey and Saik et al.

Claim 3 recites subject matter not made obvious by the combination of Pulfrey and Saik et al. Claim 3 recites the second unit is affixed to the speaker cone "at a substantially stationary node of any modal vibration of said speaker cone." The OFFICIAL ACTION cites no additional portions of Pulfrey or Saik et al as making this limitation obvious. Thus the OFFICIAL ACTION presents no evidence of obviousness of claim 3. Accordingly, claim 3 is allowable over the combination of Pulfrey and Saik et al. “

The examiner disagrees. The examiner asserts that Pulfrey reads on the claim language as cited (See Pulfrey ; column 4-line 53- column 5, line 25). Radially is defined as moving or directed along a radius. The examiner asserts that the cited portions of Pulfrey, cited in the previous rejection, read on the radially offset.

2. Applicant's arguments, regarding the amendment to claims 3,8 and 21, filed 4/23/09, with respect to claims 3,8 and 21 have been fully considered and are persuasive. The rejections of claims 3, 8 and 21 have been withdrawn.

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3. Applicant's arguments, filed 4/23/09, with respect to claim 4 have been fully considered and are persuasive. The rejection of claim 4 has been withdrawn.
4. Claims 8 and 21 are previous dependent claims written in independent form.
5. Claims 5-6 and 9-20 are cancelled.

Claim Objections

6. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. Claim 1 is objected to because of the following informalities: Claim 1 recites "...between said first unit and said second movement...". The examiner believes this should be " between said first unit and said second unit". Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pulfrey (US 5,493,620) in view of Saik et al. (US 4,312,118).

Regarding claim 1, Pulfrey discloses an apparatus for measuring speaker cone displacement relative to a fixed position in an audio speaker having a voice coil aligned

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with the cone along an axis (cone 21, voice coil 30, Figure 2; column 2, lines 19-55; column 5, lines 5-15) with the speaker, the apparatus comprising:

(a) a variable reluctance sensor device (cone motion velocity sensing structure, 40; column 4, lines 53-61); said sensor device including a first unit fixed relative to said fixed position (annular cylindrical permanent magnet 28, Figure 2; column 5, lines 9-15), and the a second unit affixed to said speaker cone effecting relative motion between said first unit and said second movement through motion of said speaker cone at a position radially offset from said axis (voice coil 30; column 5, lines 5-20);

(b) a signal injecting circuit coupled for injecting a predetermined input signal into-said one of said first and second units (signal amplification channel 10, Figure 2; predetermined input signal is the input from input signal source at terminals 13 of the signal amplification channel; column 4, line 61-column 5, line 5); and

(c) a signal receiving circuit coupled with said one of said first and second units-for receiving a signal resulting from modulation of said input signal due to variation of reluctance of said sensor device caused by displacement of said first unit relative to said second unit and for generating an indicating signal based upon said resulting signal; at least one signal characteristic of said indicating signal being related with said cone displacement (active differentiating circuit 60, Figure 2 reads on signal receiving

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circuit as claimed; column 6, lines 6-13 and lines 34-45; sensing coil 47, Figure 2; column 6, lines 9-13).

Pulfrey teaches of a coil but fails to disclose that the coil is attached to or suspended from the cone. Saik discloses a coil suspended from a cone (coil 30 is suspended from cone 22; column 5, lines 2-6). It would have been obvious to modify Pulfrey so that the coil is attached to the cone for the benefit of securing the coil in the loudspeaker.

Regarding claim 2, Pulfrey as modified by Saik discloses wherein said first unit is comprises one of an electromagnetic coil structure and a core structure; and wherein said second unit comprises the other of said electromagnetic coil structure and said core structure (See Pulfrey as applied above to the rejection of claim 1). All elements of claim 2 are comprehended by the rejection of claim 1.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pulfrey (US 5,493,620) in view of Saik et al. (US 4,312,118) in further view of Joseph et al. (US 4,360,707).

Regarding claim 7, Pulfrey as modified by Saik discloses wherein said first unit comprises one of an electromagnetic coil structure and a core structure; and wherein said second unit comprises the other of said electromagnetic coil structure and said

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core structure See Pulfrey and Saik as applied above to claims 1 and 5). All elements of claim 7 are comprehended by the rejection of claim 5.

Allowable Subject Matter

11. Claims 8 and 21 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 8 and 21, prior art Pulfrey (US 5,493,620) discloses an apparatus for measuring speaker cone displacement relative to a fixed position in an audio speaker having a voice coil aligned with the cone along an axis (cone 21, voice coil 30, Figure 2; column 2, lines 19-55; column 5, lines 5-15), the apparatus comprising:

(a) a variable reluctance sensor device (cone motion velocity sensing structure, 40; column 4, lines 53-61); said sensor device including a first unit fixed relative to said fixed position (annular cylindrical permanent magnet 28, Figure 2; column 5, lines 9-15), and the a second unit mounted for movement with said speaker cone at a position radially offset from said axis (voice coil 30; column 5, lines 5-20);

(b) a signal injecting circuit coupled for injecting a predetermined input signal into-said one of said first and second units (signal amplification channel 10, Figure 2; predetermined input signal is the input from input signal source at terminals 13 of the signal amplification channel; column 4, line 61-column 5, line 5); and

(c) a signal receiving circuit coupled with said one of said first and second units-for receiving a signal resulting from modulation of said input signal due to variation of reluctance of said sensor device caused by displacement of said first unit relative to

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said second unit and for generating an indicating signal based upon said resulting signal; at least one signal characteristic of said indicating signal being related with said cone displacement (active differentiating circuit 60, Figure 2 reads on signal receiving circuit as claimed; column 6, lines 6-13 and lines 34-45; sensing coil 47, Figure 2; column 6, lines 9-13). Prior art Saik et al. (US 4,312,118) discloses a coil suspended from a cone (coil 30 is suspended from cone 22; column 5, lines 2-6).

Regarding claims 8 and 20, the prior art or combination thereof fails to disclose or make obvious wherein said electromagnetic coil structure operates as at least part of a high pass filter having a corner frequency and said predetermined input signal has a frequency substantially below said corner frequency.

12. .

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVONA E. FAULK whose telephone number is (571)272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devona E. Faulk/
Primary Examiner, Art Unit 2614